

THAT WHICH IS CLAIMED IS:

1. A temperature sensor comprising:
a capacitor;
a circuit element coupled in series with said
capacitor and having a resistance that varies with
5 temperature; and
a controller for charging said capacitor through
said circuit element, measuring a charging time required
to charge said capacitor to a predetermined threshold, and
determining a temperature based upon the charging time.
2. The temperature sensor of Claim 1 wherein
said circuit element comprises a thermistor.
3. The temperature sensor of Claim 1 further
comprising at least one calibration resistor coupled
between said controller and said capacitor; and wherein
said controller sequentially charges said capacitor
5 through said circuit element and said at least one
calibration resistor, measures respective charging times
required to charge said capacitor to the predetermined
threshold through said circuit element and said at least
one calibration resistor, and determines the temperature
10 based upon the charging times.
4. The temperature sensor of Claim 3 wherein
said at least one calibration resistor comprises a high
calibration resistor and a low calibration resistor.
5. The temperature sensor of Claim 1 wherein

said controller comprises a counter for measuring the charging time.

6. The temperature sensor of Claim 1 wherein said controller comprises a driver coupled to said circuit element for charging said capacitor.

7. The temperature sensor of Claim 6 wherein said controller further comprises a control logic circuit for controlling said driver.

8. The temperature sensor of Claim 1 wherein said controller comprises a Schmitt hysteresis device coupled to said capacitor for determining when said capacitor has been charged to the predetermined threshold.

9. The temperature sensor of Claim 1 wherein said controller is implemented in an ASIC.

10. A temperature sensor comprising:
a capacitor;

a circuit element coupled in series with said capacitor and having a resistance that varies with temperature; and

a controller for discharging said capacitor through said circuit element, measuring a discharging time required to charge said capacitor to a predetermined threshold, and determining a temperature based upon the discharging time.

11. The temperature sensor of Claim 10 wherein

said circuit element comprises a thermistor.

12. The temperature sensor of Claim 10 further comprising at least one calibration resistor coupled between said controller and said capacitor; and wherein said controller sequentially discharges said capacitor
5 through said circuit element and said at least one calibration resistor, measures respective discharging times required to discharge said capacitor to the predetermined threshold through said circuit element and said at least one calibration resistor, and determines the
10 temperature based upon the discharging times.

13. The temperature sensor of Claim 12 wherein said at least one calibration resistor comprises a high calibration resistor and a low calibration resistor.

14. The temperature sensor of Claim 10 wherein said controller comprises a counter for measuring the discharging time.

15. The temperature sensor of Claim 10 wherein said controller comprises a driver coupled to said circuit element for discharging said capacitor.

16. The temperature sensor of Claim 15 wherein said controller further comprises a control logic circuit for controlling said driver.

17. The temperature sensor of Claim 10 wherein said controller comprises a Schmitt hysteresis device

coupled to said capacitor for determining when said capacitor has been discharged to the predetermined threshold.

18. The temperature sensor of Claim 10 wherein said controller is implemented in an ASIC.

19. A temperature sensor comprising:
a capacitor;
a thermistor coupled in series with said capacitor;

5 at least one calibration resistor coupled to said capacitor; and

a controller for sequentially charging said capacitor through said thermistor and said at least one calibration resistor, measuring respective charging times
10 required to charge said capacitor to a predetermined threshold through said thermistor and said at least one calibration resistor, and determining a temperature based upon the charging times.

20. The temperature sensor of Claim 19 wherein said at least one calibration resistor comprises a high calibration resistor and a low calibration resistor.

21. The temperature sensor of Claim 19 wherein said controller comprises a counter for measuring the charging times.

22. The temperature sensor of Claim 19 wherein said controller comprises at least one driver coupled to

said thermistor and said at least one resistor for charging said capacitor.

23. The temperature sensor of Claim 22 wherein said controller further comprises a control logic circuit for controlling said at least one driver.

24. The temperature sensor of Claim 19 wherein said controller comprises a Schmitt hysteresis device coupled to said capacitor for determining when said capacitor has been charged to the predetermined threshold.

25. The temperature sensor of Claim 19 wherein said controller is implemented in an ASIC.

26. A temperature sensor comprising:
a capacitor;
a thermistor coupled in series with said capacitor;

5 at least one calibration resistor coupled to said capacitor; and

 a controller for sequentially discharging said capacitor through said thermistor and said at least one calibration resistor, measuring respective discharging
10 times required to discharge said capacitor to a predetermined threshold through said thermistor and said at least one calibration resistor, and determining a temperature based upon the discharging times.

27. The temperature sensor of Claim 26 wherein said at least one calibration resistor comprises a high

calibration resistor and a low calibration resistor.

28. The temperature sensor of Claim 26 wherein said controller comprises a counter for measuring the discharging times.

29. The temperature sensor of Claim 26 wherein said controller comprises at least one driver coupled to said thermistor and said at least one resistor for discharging said capacitor.

30. The temperature sensor of Claim 29 wherein said controller further comprises a control logic circuit for controlling said at least one driver.

31. The temperature sensor of Claim 26 wherein said controller comprises a Schmitt hysteresis device coupled to said capacitor for determining when said capacitor has been discharged to the predetermined threshold.

32. The temperature sensor of Claim 26 wherein said controller is implemented in an ASIC.

33. A method for sensing temperature using a capacitor and a circuit element having a resistance that varies with temperature, the method comprising:

- charging the capacitor through the circuit
- 5 element;
- measuring a charging time required to charge the capacitor to a predetermined threshold; and

determining the temperature based upon the charging time.

34. The method of Claim 33 wherein the circuit element comprises a thermistor.

35. The method of Claim 33 further comprising coupling at least one calibration resistor to the capacitor; wherein charging the capacitor comprises sequentially charging the capacitor through the circuit
5 element and the at least one calibration resistor; wherein measuring the charging time comprises measuring respective charging times required to charge the capacitor to the predetermined threshold through the circuit element and the at least one calibration resistor; and wherein
10 determining the temperature comprises determining the temperature based upon the charging times.

36. The method of Claim 35 wherein the at least one calibration resistor comprises a high calibration resistor and a low calibration resistor.

37. The method of Claim 33 wherein measuring the charging time comprises measuring the charging time using a counter.

38. The method of Claim 33 wherein charging the capacitor comprises coupling a driver to the circuit element and charging the capacitor using the driver.

39. A method for sensing temperature using a

capacitor and a circuit element having a resistance that varies with temperature, the method comprising:

discharging the capacitor through the circuit
5 element;
measuring a discharging time required to
discharge the capacitor to a predetermined threshold; and
determining the temperature based upon the
discharging time.

40. The method of Claim 39 wherein the circuit element comprises a thermistor.

41. The method of Claim 39 further comprising
coupling at least one calibration resistor to the
capacitor; wherein discharging the capacitor comprises
sequentially discharging the capacitor through the circuit
5 element and the at least one calibration resistor; wherein
measuring the discharging time comprises measuring
respective discharging times required to discharge the
capacitor to the predetermined threshold through the
circuit element and the at least one calibration resistor;
10 and wherein determining the temperature comprises
determining the temperature based upon the discharging
times.

42. The method of Claim 41 wherein the at least one calibration resistor comprises a high calibration resistor and a low calibration resistor.

43. The method of Claim 39 wherein measuring the discharging time comprises measuring the discharging

time using a counter.

44. The method of Claim 39 wherein discharging the capacitor comprises coupling a driver to the circuit element and discharging the capacitor using the driver.